CLAIMS

1. A microphone to be installed on a surface of the skin on the sternocleidomastoid muscle immediately below the mastoid of the skull, that is, in the lower part of the skin behind the auricle, intended to sample at least one of a non-audible murmur articulated by a variation in resonance filter characteristics associated with motion of the phonatory organ, the non-audible murmur not involving regular vibration of the vocal cords, the non-audible murmur being a vibration sound generated when an externally non-audible respiratory sound is transmitted through internal soft tissues, a whisper which is audible but is uttered without regularly vibrating the vocal cords, a sound uttered by regularly vibrating the vocal cords and including a low voice and a murmur, and input speech such as a teeth gnashing sound and a tongue clucking sound, the microphone comprising a condenser microphone portion having a pair of diaphragm electrodes and a contact portion which has an acoustic impedance close to the acoustic impedance of soft tissues in the body, and conducts said input speech from said skin surface to said condenser microphone.

2. The microphone according to Claim 1, wherein said contact portion is formed of hardened silicone rubber.

3. The microphone according to Claim 2, wherein said hardened silicone rubber not only covers said condenser

microphone portion but also fills the whole inside of the microphone.

4. The microphone according to Claim 2 or Claim 3, wherein the hardness of said hardened silicone rubber is not higher than 30 (Shore A).

5. The microphone according to Claim 2 or Claim 3, wherein said hardened silicone rubber is addition reaction-setting organo-polysiloxane, silica fine powder is 10 to 60 weight parts, and organo-hydrogen polysiloxane is 1 to 60 weight parts.

6. The microphone according to any of Claim 1 through Claim 5, wherein the shape of said contact portion is such that the sectional area thereof becomes gradually smaller from said condenser microphone portion toward said skin surface.

7. The microphone according to any of Claim 1 through Claim 5, wherein the shape of said contact portion is such that the sectional area thereof becomes gradually larger from said condenser microphone portion toward said skin surface.

8. The microphone according to any of Claim 1 through Claim 7, wherein said condenser microphone portion is disposed submerged in said contact portion.

9. The microphone according to Claim 8, further comprising a reinforcing portion which is harder than said contact portion and covers other parts than the face of the contact portion coming into contact with said skin surface, and a reflector which is disposed on the interface between said contact portion and said reinforcing portion and reflects said non-audible murmurs.

10. The microphone according to Claim 9, wherein said condenser microphone portion is turned upside down.

11. The microphone according to Claim 10, wherein said reflector has a parabolic shape, namely a shape following a parabola.

12. The microphone according to any of Claim 1 through Claim 11, wherein it is configured integrally with a head wearing object to be fitted to the head of a human, such as spectacles, headphones, an earphone, a cap or a helmet.

13. A signal processing device which subjects to signal processing input signals from a microphone to be installed on a surface of the skin on the sternocleidomastoid muscle immediately below the mastoid of the skull, that is, in the lower part of the skin behind the auricle, intended to sample at least one of a non-audible murmur articulated by a variation in resonance filter characteristics associated with motion of the phonatory organ, the non-audible murmur not involving

regular vibration of the vocal cords, the non-audible murmur being a vibration sound generated when an externally non-audible respiratory sound is transmitted through internal soft tissues, a whisper which is audible but is uttered without regularly vibrating the vocal cords, a sound uttered by regularly vibrating the vocal cords and including a low voice and a murmur, and input speech such as a teeth gnashing sound and a tongue clucking sound, the microphone comprising a condenser microphone portion having a pair of diaphragm electrodes and a contact portion which has an acoustic impedance close to the acoustic impedance of soft tissues in the body, and conducts said input speech from said skin surface to said condenser microphone.

14. A communication interface system wherein it uses for communication the result of signal processing by the signal processing device according to Claim 13.

15. A sound sampling method by which a microphone samples at least one of a non-audible murmur articulated by a variation in resonance filter characteristics associated with motion of the phonatory organ, the non-audible murmur not involving regular vibration of the vocal cords, the non-audible murmur being a vibration sound generated when an externally non-audible respiratory sound is transmitted through internal soft tissues, a whisper which is audible but is uttered without regularly vibrating the vocal cords, a sound uttered by regularly vibrating the vocal cords and including a low voice

and a murmur, and input speech such as a teeth gnashing sound and a tongue clucking sound, comprising:

said microphone

causes said input speech to be conducted from said skin surface to a condenser microphone having a pair of diaphragm electrodes and via a contact portion whose acoustic impedance is matched to an acoustic impedance close to the acoustic impedance of soft tissues in the body, and

is installed on a surface of the skin on the sternocleidomastoid muscle immediately below the mastoid of the skull, that is, in the lower part of the skin behind the auricle.